Multi-modal Performance Measures and Standards

Washington County Department of Land Use and Transportation

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Prepared by: Kittelson & Associates, Inc.

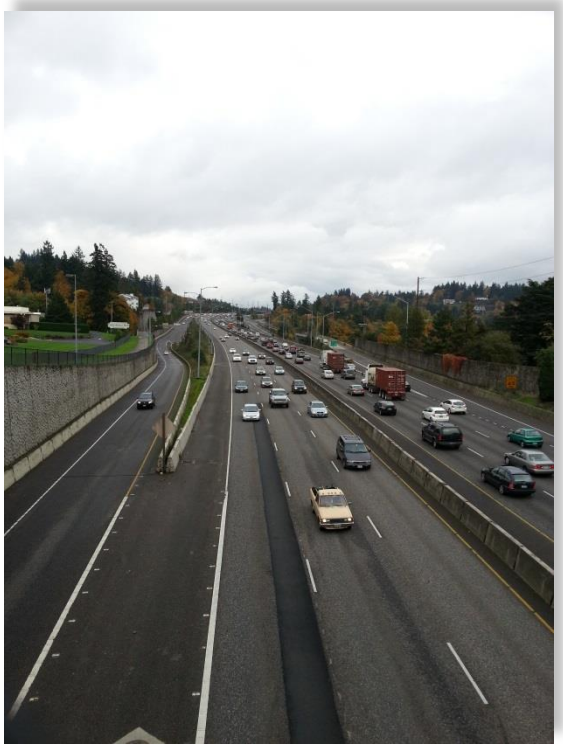
PROJECT BACKGROUND

As the Portland Metro area has grown and developed, the region has embraced a wide range of related goals, many of which are related to multi-modal transportation, including goals related to reducing single-occupant-vehicle travel. Yet, measuring non-auto travel quantitatively and applying those metrics has remained difficult. Transportation performance measures continue to be dominated by auto measures despite Oregon Transportation Planning Rule (TPR) provisions allowing for more diverse measures. Increasingly, jurisdictions are finding that maintaining a specific level of auto mobility may be at odds with other objectives and that multi-modal measures based on a broader set of goals could better serve their communities.

Washington County has begun exploring methods to incorporate multi-modal performance measures and standards into all levels of the planning process. In the context of this report, performance measures are methods to objectively measure the transportation system. Standards describe an acknowledged acceptable level of performance for a measure.

The Final Report for the Washington County Multi-modal Performance Measures and Standards project contains three sections:

- Policy Context and Performance Measure Assessment;
- Applying the Measures: Lessons Learned; and,
- Washington County Recommended Measures and Implementation Framework.



POLICY CONTEXT AND PERFORMANCE MEASURE ASSESSMENT

The existing policies and code in Oregon and the Portland Metro region allow for the adoption and implementation of multi-modal performance measures. The initial stage of the project evaluated over 160 potential measures in a two-tiered evaluation process to help determine measures that would be most applicable in Washington County. The first stage of the assessment evaluated the measures according to the following criteria:

- Washington County Transportation System Plan (TSP) goal(s) addressed
- Mode(s) addressed
- Data cost and accessibility
- Understandability of measures
- Reflective of user experience
- Applicability to different planning uses

Following the broad evaluation of each of the measures, a subset of measures was selected for more in-depth testing in hypothetical planning scenarios, including transportation system planning, corridor planning, and a variety of development review scenarios. The lessons learned from this testing helped to inform the measures and methods that were ultimately recommended for further consideration in Washington County.

APPLYING THE MEASURES: LESSONS LEARNED

In developing recommendations for Washington County, the project team went through several iterations of testing measures, comparing results, and evaluating methods for applying measures in the context of different planning applications. Through this process, it became clear that any recommendation for Washington County would be unlikely to apply directly to other jurisdictions. Jurisdictions have substantially different existing transportation systems, land use environments, goals, priorities, and current methods for measuring performance. This section, therefore, documents the "lessons learned" from the process in order to help inform other agencies that may want to explore multi-modal performance measures.

Lesson: Communities may need to select different measures for different planning applications.

Communities can use performance measures and standards in a variety of settings and/or planning applications. Some measures work well across multiple settings, while others are only suitable in certain applications. Table 1 shows how the performance measures can be applied in different types of planning applications.

Lesson: For TSPs, subarea and multi-jurisdictional corridor studies, determine which measures will be used to track progress towards goals and which will be used to help define or prioritize projects.

Higher-level measures, such as total vehicle hours of delay, are useful for monitoring and tracking progress over time and/or comparison of scenarios, but are not specific enough to help define or prioritize particular transportation projects. Other facility-specific measures are needed to develop and evaluate projects for inclusion in Transportation System Plans.

Lesson: For project / corridor planning, set clear goals and priorities; select measures to reflect the goals; and weight them according to priorities.

When comparing alternatives, as in a corridor

Table 1: Primary functions of performance measures in different planning applications

Application	Prioritization	Comparison	Long-term Benchmark	Near-team Standard or Threshold
Transportation System Planning / Subarea Plans / Multi-jurisdictional Corridor Planning	■		■	
Project / Corridor Planning		■		
Plan Amendments / Zone changes subject to TPR			■	■
Development Review		■		■

study, clear priorities and goals assist with the selection of the performance measures to be used to measure and compare performance for each mode amongst the alternatives. Inevitably, communities will need to make trade-offs in planning projects. Therefore, first select measures that reflect the needs and goals of the project, then weight the measures according to the priorities of the project stakeholders. This process allows for selection of an alternative driven by community goals and priorities, based on a diverse set of quantitative measures.

Lesson: For development review and plan amendments, incorporating multi-modal measures in this context poses a challenge to jurisdictions, given the need to demonstrate a nexus between the impact of the development and an improvement as a condition of approval.

For auto-mobility oriented improvements, demonstrating the nexus can be relatively easy, given the highly developed methodologies that are available and accepted for determining the number of auto trips generated by a proposed land use and for measuring auto mobility (many of which are national or third party assessments).

Applying Measures in Development Review

Given the challenges of applying multi-modal measures in the development review context, the project team focused efforts on developing potential methods in this planning context. Figure 1 outlines two potential approaches. The remainder of this section discusses key lessons from each potential approach considered.

Approach 1: Assess a new fee in addition to the existing system charges that would be used to fund non-auto mode improvements within the development area commensurate with the impact of the development.

Agencies evaluating this approach must consider that they would be responsible for the planning, design, and implementation of the improvements. Additionally, agencies should consider the likelihood of an applicant's fees going towards improvements that do not directly benefit their site if the district boundary is large or applied at the full jurisdictional boundary level.

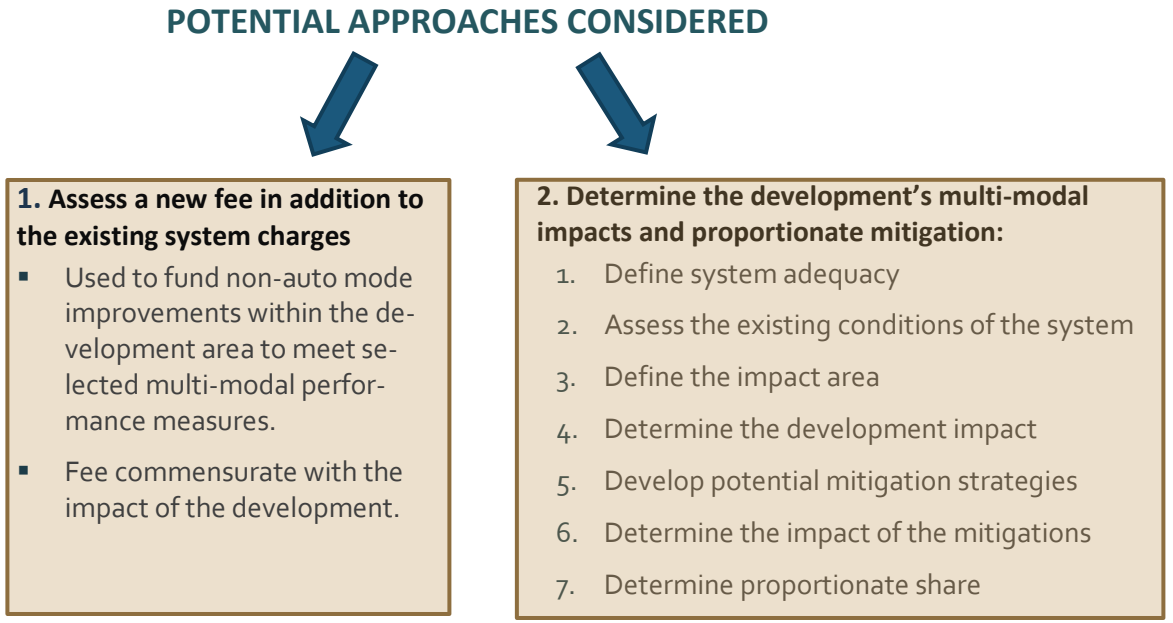
Approach 2: Determine the development's multi-modal impacts and proportionate mitigation.

This approach may consist of some or all of the steps outlined in Figure 1, similar to existing development review processes using motor vehicle measures.

*Lesson: In **Step 1**, defining system adequacy, multi-modal measures fall into two general categories: system completeness (e.g. sidewalk coverage) and system performance (e.g. pedestrian multi-modal level of service).*

System completeness measures are most applicable when a jurisdiction or area is not fully developed. These measures are not recommended for assessing deficiencies in an urban area with a built out system. System performance measures can be used to define system adequacy and standards for relatively complete networks where performance may vary across the

Figure 1: Applying Multi-modal Measures in Development Review



system. System performance measures can also be used in conjunction with system completeness measures.

*Lesson: **Step 2**, assess existing conditions, must document the existing conditions using the selected multi-modal measures in order to establish a baseline on which to evaluate project impacts.*

*Lesson: In **Step 3**, defining the impact area, a study area focused on intersections is not sufficient for multi-modal assessment.*

The project team considered a variety of methods for defining an impact area, outlined below and with more detailed review of each method in the final report.

- District-based system
- Path along the network to "essential destinations," including transit stops
- Distance along the network
- A set radius from the development

*Lesson: In **Step 4**, determine development impact, the methodology for determining impacts must be carefully considered to account for all transportation modes without creating a disincentive for generation of walking, biking, or transit trips.*

The project team considered a variety of methods for determining development impact, outlined below and with more detailed review of each method in the final report.

- Use person trips generated by mode based on an "aspirational" mode split and measure the impact of those trips on the system.
- Use auto trips generated as the starting point for impact, and then measure the impact of those auto trips on the system.
- Use total area developed as a measure of impact.
- Portion of theoretical "development capacity" of a particular district.
- Assign impact "points" that need to be mitigated.

*Lesson: In **Step 5**, develop mitigation strategies, ultimate strategies selected depend on both the measures that are chosen for system adequacy and the impact area.*

*Lesson: **Step 6**, determining the impact of mitigations, allows jurisdictions to comprehensively evaluate how mitigation strategies affect all users of the transportation system.*

Jurisdictions could establish a mode-neutral policy in which the system must be left "no worse than before" as a net of all impacts. Jurisdictions could also make policy decisions to prioritize different modes in different areas.

*Lesson: **Step 7**, determine proportional share, will depend on the performance measures selected to define system adequacy, the method of determining impact, and the impact area.*

WASHINGTON COUNTY RECOMMENDED MEASURES AND IMPLEMENTATION FRAMEWORK

Based on the evaluation of multi-modal performance measures and the feedback and input received from the Technical Advisory Committee and a variety of county staff through-out the process, the project team identified the following key recommendations:

- Consider updating R&O 86-95, the document that describes the current development review process, to include multi-modal measures and enable Washington County to ensure that future improvements associated with development are in alignment with the County's Transportation System Plan goals.
- Continue applying and exploring new ways to apply multi-modal measures in corridor or project planning in order to reflect the objectives of each project and the desires of stakeholders affected by each project.
- Take proactive steps to develop a base level of data for implementing emerging measures currently lacking data. This may help inform future updates to the County's Transportation System Plan, as well as measure progress towards Transportation System Plan goals.

To further the progress of incorporating multi-modal measures, the project team developed a set of recommended measures and potential

processes for incorporating them into the various planning and development review processes. Table 2 summarizes the measures recommended for consideration in each of the different planning applications. A high-level summary of the proposed process for incorporating multi-modal measures is summarized below.

Transportation System Planning

In transportation system planning, Washington County can use multi-modal measures to set long-term targets for the future, such as complete systems for all modes, affordable transportation and housing for all, or zero traffic fatalities. Transportation System Plan updates can consider progress towards these goals and set attainable interim targets for the near-term.

Project / Corridor Planning

In lieu of establishing standards to apply to all project/corridor planning, a process that defines the appropriate standards for each project / corridor can be applied at the onset of each study process. This process should evaluate:

1. Size and scope of the study
2. Surrounding land uses, needs, and primary users served by the project/corridor
3. Input from stakeholders to determine priorities
4. Goals of the project

Based on this qualitative evaluation, performance measures can be selected according to the needs and requirements for the project or corridor study.

Plan Amendments / Development Review

The proposed process for a developer or plan amendment applicant includes the following steps:

1. **Determine the development impact –** Estimate person-trips generated based the region's goals for mode split, and assign multi-modal trips to the transportation network.
2. **Determine impact area –** Intersections or facilities upon which a specific number of trips are added or where a specific percent increase in trips occurs over existing (may vary by mode).
3. **Assess existing conditions for each mode –** Evaluate existing facilities (including intersections) against applicable performance standards. Identify any affected locations on the existing SPIS list and the safety-based prioritized list of pedestrian and bicycle needs.
4. **Determine improvements –** Identify improvement options to mitigate impacts, complete a proportional share calculation and identify a set of development conditions.

The full project report provides more detail on the use of multi-modal measures in each planning application.

Table 2: Washington County Recommended Measures by Planning Application

Measure	Transportation System Planning	Corridor Planning	Development Review / Plan Amendment
Mode Share*	■		■
Sidewalk completeness*	■	■	■
Crossings completeness	■	■	■
Bicycle facility completeness*	■	■	■
Intersection completeness	■	■	■
Crash frequency*	■		■
Predicted Crash Rate		■	
Pedestrian delay		■	■
Pedestrian crossing distance		■	■
Pedestrian MMLOS		■	
Bicycle MMLOS		■	
Transit Accessibility*	■		
Bicycle Level of Traffic Stress	■	■	
Travel time reliability – buffer index	■	■	■
Accessibility to destinations / diverse uses	■		
Affordability	■		
Vehicle hours of delay per capita*	■		
Vehicle miles traveled per capita*	■		
Average Travel Time	■		
Demand to capacity ratio*	■		

* Measures currently in use or proposed in the 2014 TSP update.